

Please substitute the paragraph starting at page 1, line 14 and ending at page 2, line 14 with the following replacement paragraph.

B1
--Conventionally, the parallax barrier method and the lenticular method are known as methods of performing stereoscopic image display on an image displaying device such as a CRT or an LCD. With these methods, a stereoscopic image is displayed by displaying a synthesized stripe parallax image in which parallax images of two or more viewpoints, which are divided in a stripe pattern, are arranged alternately in a predetermined order, and guiding display light from the parallax image only to a viewpoint position corresponding to the parallax image in an optical member disposed in the front of the image displaying device. In addition, a method and an apparatus for stereoscopic image display is proposed in, for example, Japanese Patent Application Laid-Open No. 9-311294 which is characterized by transmitting light from an illumination light source through an optical modulator having a predetermined light transmitting section and a light shielding section and patterning the transmitted luminous flux, giving the patterned luminous flux directivity by a patterned optical system such that it becomes incident on the right and the left eyes of an observer separately, providing an image displaying device of a transmitting type between the patterned optical system and the observer, and synthesizing parallax images corresponding to the right and the left eyes alternately in a stripe pattern on the image displaying device to display.--

Please substitute the paragraph starting at page 3, line 16 and ending at page 3, line 21 with the following replacement paragraph.

B3
--In addition, in these conventional stereoscopic image displaying ~~method~~
methods without spectacles, there is another problem in that the number of display pixels
are halved when parallax images for each of the left and the right eyes are displayed, and
resolution is decreased.--

Please substitute the paragraph starting at page 3, line 24 and ending at page 4,
line 8 with the following replacement paragraph.

B3
--The present invention has been devised in view of the above and other
drawbacks, and it is an object of the present invention to provide a stereoscopic image
displaying method and an apparatus using the same, which are capable of displaying a
stereoscopic image with high resolution by reducing cross talk and ~~moire~~ moiré, or are
capable of displaying an image in which a stereoscopic image and a plane image are mixed
if necessary or displaying a plane image with high resolution without flicker as well in a
display apparatus when a stereoscopic image is observed without requiring special
spectacles.--

Please substitute the paragraph starting at page 7, line 9 and ending at page 7,
line 11 with the following replacement paragraph.

B4
--In addition, in the above-mentioned method, the image displaying device
may have ~~an a~~ a light emissive display apparatus and a polarizing plate.--

Please substitute the paragraph starting at page 8, line 21 and ending at page 9,
line 20 with the following replacement paragraph.

B3
--In addition, in the above-mentioned method, when the left and the right

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Concl 14

pupils are apart by an interval E , a period in the horizontal direction of the optical element forming the first optical system is $HL1$, a width in the horizontal direction of the light transmitting section of the optical modulator is Hm , a period in the horizontal direction of the optical element forming the second optical system is $HL2$, a pixel pitch in the horizontal direction of the image displaying device is Hd , optical distances between the first optical system and the second optical system and the first optical system and the image displaying device are $LHL2$ and Lhd , respectively, an optical distance from the observation surface to the first optical system is $Lh0$, an optical distance from a crossing face that is the first one counted from the first optical system in the direction to the image displaying device among faces on which a group of light beams connecting the left and the right pupils and each pixel of the image displaying device cross is $Lh1$, an optical distance from the first optical system to a crossing face that is the first one counted from the first system in the direction to the image displaying device is $Lh1b$, and both Nd and $NL2$ are integral numbers of 2 or more, the following ~~relation~~ relations may be realized:--

Please substitute the paragraph starting at page 10, line 3 and ending at page 10, line 18 with the following replacement paragraph,

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--In addition, in the above-mentioned method, when a pixel pitch in the vertical direction of the image displaying device is Vd , a width in the vertical direction of the light transmitting section or the light shielding section of the optical modulator is Vm , an optical distance from the image displaying device to a face having the optical actions in the vertical direction of the second optical system is $Lv1$, an optical distance from a face having the optical actions in the vertical direction of the second optical system to the

optical modulator is $Lv2$, a focal distance in the vertical direction of each optical element forming the second optical system is f_v , and an optical distance between the optical modulator and the observation surface is $Lv0$, the following ~~relation~~ relations may be realized:--

Please substitute the paragraph starting at page 10, line 26 and ending at page 11, line 22 with the following replacement paragraph.

--In addition, a stereoscopic image displaying method in accordance with another embodiment of the present invention is characterized in that each of the parallax images corresponding to a plurality of different viewpoints is made a predetermined stripe image, display light, which is from a stripe image corresponding to one viewpoint of a synthesized parallax image on an image displaying device that can alternately display a synthesized parallax image in which the stripe images ~~is~~ are arranged in a predetermined order and synthesized, and a synthesized parallax image in which the arrangement is changed; is guided to an optical modulator, which is formed in synchronism with the change of a synthesized parallax image that displays a predetermined pitch of light transmitting section and light shielding section by a second optical system disposed in the front of the image displaying device, display light that has transmitted through the light transmitting section of the optical modulator, are collected at a position corresponding to a viewpoint on an observation face by a first optical system, and three-dimensional observation of image information displayed on the image displaying device is thereby performed.--

Please substitute the paragraph starting at page 11, line 23 and ending at page 12, line 4 with the following replacement paragraph.

8
--In the above-mentioned method, display light reaching a viewpoint position of an observer which ~~correspond~~ corresponds to the stripe image among the display light emitted from pixels forming each of the stripe ~~image~~ images may be collected in the optical modulator so as to be transmitted through the light transmitting section of the optical modulator by the second optical system, and the other light may be shielded by the light shielding section.--

Please substitute the paragraph starting at page 15, line 16 and ending at page 15, line 16 with the following replacement paragraph.

9
--DESCRIPTION OF THE PREFERRED ~~EMBODIMENT~~

EMBODIMENTS--

Please substitute the paragraph starting at page 17, line 13 and ending at page 17, line 27 with the following replacement paragraph.

10
--It is assumed that the second synthesized parallax image 9 in which odd number lines of the synthesized parallax image are parallax images for the right eye (R1, R3, R5, ...) and even number lines are parallax images for the left eye (L2, L4, L6, ...) is displayed in the state of the first embodiment shown in Fig. 1. In Fig. 1, one cylindrical lens 2a, which forms the horizontal lenticular lens 2, which is oblong in the horizontal direction and has a curvature in the vertical direction only, corresponds to each pixel horizontal line of the synthesized parallax image 9 to be displayed on the image displaying

B10
Canceled

device 1, and a pixel 1a of the image displaying device 1 focuses an image on the optical modulator 4 in a vertical cross section (in a V-LA cross section).--

Please substitute the paragraph starting at page 18, line 1 and ending at page 18, line 9 with the following replacement paragraph.

B11

--In the horizontal direction (in an H-LA cross section), image displaying light that is emitted from each pixel of the image displaying device 1 is collected on the optical modulator 4 by the second vertical lenticular lens 5. The optical modulator 4 is disposed on a focal point face of the cylindrical lens 5a which forms the second vertical lenticular lens 5, which is oblong in the vertical direction and has a curvature in the horizontal direction only.--

Please substitute the paragraph starting at page 25, line 14 and ending at page 25, line 26 with the following replacement paragraph.

B12

--In this way, in this embodiment, since there is a degree of freedom at the positions where the second vertical lenticular lens 5 and the image displaying device 1 are arranged, there is a configuration in which a stereoscopic image can be displayed well even if, for example, the image displaying device 1 is such as an LCD or a PDP, and a liquid crystal layer or the like on which images are actually displayed are sandwiched by a predetermined thickness of a substrate glass or the like, or a member such as the second vertical lenticular lens 5 and the horizontal lenticular lens 2 cannot be arranged in the immediate vicinity of the image displaying device 1.--

Please substitute the paragraph starting at page 29, line 7 and ending at page 29, line 19 with the following replacement paragraph.

B13
--An image forming device 10 shown in Fig. 1 generates a synthesized parallax image to be displayed on an image displaying device 1, and at the same time, determines the positions of the light transmitting section 4a and the light shielding section 4b in a checkered pattern of the optical modulator 4 to generate and output a control signal in synchronism with an image signal. This control signal and the image signal of the synthesized parallax image are controlled to drive in synchronism each ~~others~~ other by a unit of one pixel or one scan line of the image displaying device 1 and the optical modulator 4. (This will be described in detail later.)--

Please substitute the paragraph starting at page 35, line 12 and ending at page 35, line 24 with the following replacement paragraph.

B14
--The linearly polarized light having ~~an oscillating~~ a polarized face oscillating in the plane of the paper surface, which has been emitted from the image displaying device 1, ~~change~~ changes the polarization direction along the direction of the director when transmitting through the π cell 41, and ~~become~~ becomes linearly polarized light oscillating in the horizontal direction (the direction perpendicular to the paper surface) and is emitted from the π cell 41. ~~These~~ This light ~~transmit~~ transmits through ~~the part to~~ the polarization part 42a forming the polarizer 42 and ~~are~~ is shielded in the ~~part of~~ the polarization part 42b, thus, displaying image light transmission in a checked pattern.--

Please substitute the paragraph starting at page 35, line 25 and ending at page

36, line 14 with the following replacement paragraph.

B15
--To the contrary, if the impressed voltage on the π cell 41 is on (Fig. 14), the liquid crystal director in the π cell 41 is arranged substantially perpendicular to the interface of the π cell 41 (the travelling direction of light), and the linearly polarized light having an oscillating polarized face in a paper surface which has been emitted from the image displaying device 1 is emitted from the π cell 41 as the linearly polarized light of an oscillating polarized face in a paper surface without changing the polarization direction. ~~These~~ This light ~~are~~ is shielded in ~~the part of~~ the polarization part 42a ~~forming the polarizer~~ 42 and transmits through ~~the part of~~ the polarization part 42b. Therefore, the displaying image light is transmitted in a pattern that is interpolating interpolated with the transmitting part of a checkered pattern in the case in which the impressed voltage is off.--

Please substitute the paragraph starting at page 36, line 20 and ending at page 37, line 5 with the following replacement paragraph.

B16
--In this embodiment, the synthesized parallax image 9 shown in Fig. 7 and the synthesized parallax image 8 shown in Fig. 9 are alternately displayed on the image displaying device 1. In synchronism with the change of images, the image forming device 10 outputs a synchronizing signal to a driving device 12 of the first phase shift member (π cell) 41, and turning on/off impressed voltage on the first phase shift member (π cell) 41. Thus, the polarizer 42 transmits the displaying image light ~~is transmitted~~ in a checkered pattern by the aforementioned action of the π cell, and a stereoscopic image of

B 116
Conc 121

high resolution can be observed in a principle similar to that described in the first embodiment.--

Please substitute the paragraph starting at page 37, line 12 and ending at page 37, line 21 with the following replacement paragraph.

B 117

--Naturally, it is possible to provide a plurality of electrodes in a horizontal stripe pattern to control a phase shift state for each block that is divided corresponding to scan lines of the image displaying device 1. In this case, it is possible to time a driving signal to each divided block of the first phase shift member (π cell) 41 by using a selection signal (horizontal synchronizing signal) to a scan a line of the image displaying device corresponding to the position of the divided block.--

Please substitute the paragraph starting at page 37, line 22 and ending at page 38, line 6 with the following replacement paragraph.

B 118

--Fig. 15 to 19 ~~illustrates~~ illustrate the other embodiments of the polarizer 41 in this embodiment. Operations of this device will be described here. This embodiment is different from the aforementioned embodiment in that a device is used which is composed of a second phase member (second phase shift member) 421 and a polarizer 422 instead of the polarizer 42 on which the 42a parts (shaded parts) and the 42b parts (dotted parts) whose polarization axes cross each other are arranged in a checkered pattern, and in which phases of the second phase member 421 is are processed as 0; or π in a checkered pattern.--

Please substitute the paragraph starting at page 51, line 2 and ending at page 51, line 14 with the following replacement paragraph.

B19
--As ~~describe~~ described above, by alternately displaying the parallax images 6 and 7 on the image displaying device 1 and turning on/off the impressed voltage on the first phase shift member (π cell) 41 in synchronism with the change of the images, an observer observes all pixels of each parallax image to be displayed on the image displaying device 1, thus, a stereoscopic image of high resolution can be observed. In addition, the stereoscopic image displaying method that can display a mixed image of a stereoscopic image and a plane image with high resolution, or that can display a plane image with high resolution without flicker can be realized by the same way as in the first embodiment.--

Please substitute the paragraph starting at page 53, line 12 and ending at page 53, line 18 with the following replacement paragraph.

B20
--Therefore, ~~since~~ the plane image (2D image) without and parallax is seen by both eyes and parallax images corresponding to each eye are separately displayed in the other parts. As a result, an image which is displayed with high resolution, in which the stereoscopic image and the plane image (2D image) are mixed, can be observed on the same screen.--